

APPENDIX A

Ergonomic Risk Factor Descriptions and Examples

[Non-Mandatory]

1. Ergonomic **risk factors** are characteristics of a job that contribute to the creation of ergonomic hazards that may negatively impact job performance including quality, productivity, as well as worker health. Section 'C' of the rule required that awareness training covers what are risk factors and how to recognize them.

Risk factors are present at varying levels for different jobs and tasks. Generally, the greater the exposure is to a single risk factor or combination of risk factors, the greater the probability of a musculoskeletal disorder. The mere presence of a risk factor does not necessarily mean that an employee performing a job is at undue risk of injury.

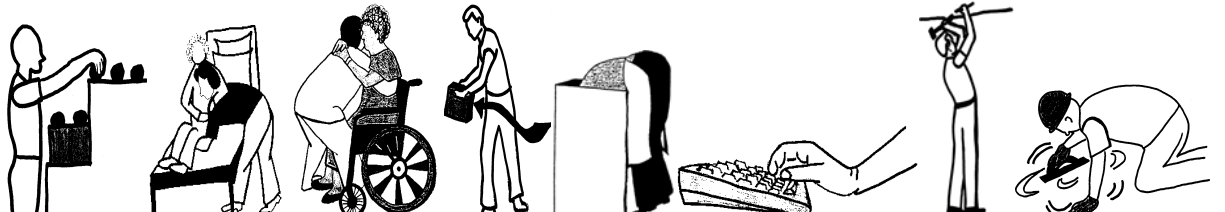
2. For job assessment of ergonomic risk factors consider the following, as described in table 1:
 - a. Awkward postures and motions
 - b. Forceful exertions
 - c. Repetition
 - d. Sustained exertions
 - e. Vibration
 - f. Contact stress
 - g. Cold temperature


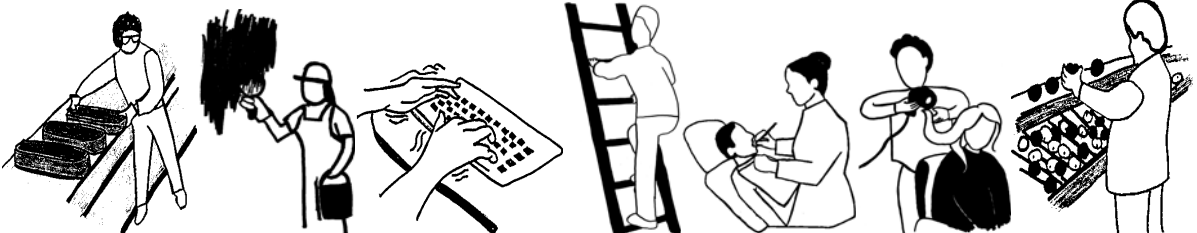
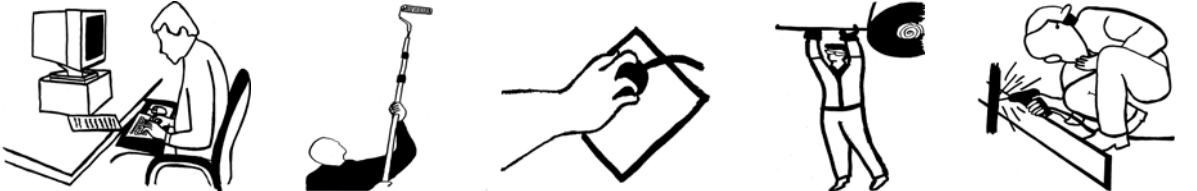
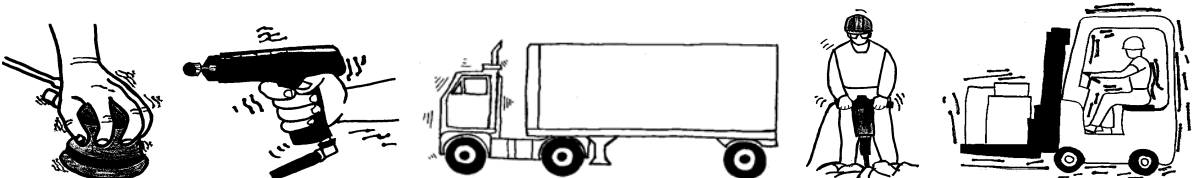

Risk factors may be evaluated by the following exposure properties:

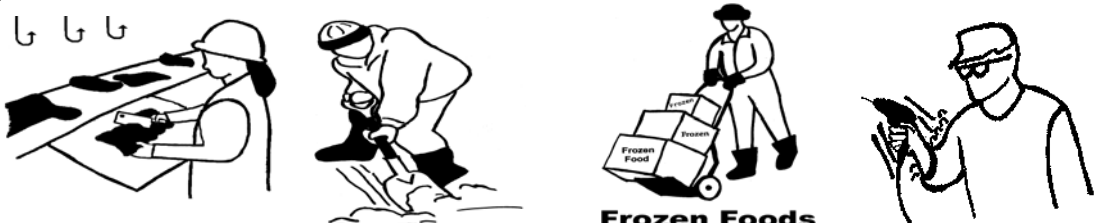
- h. Duration
- i. Recovery
- j. Magnitude

Table 1

Risk Factor Descriptions With Examples and Exposure Properties

a. Awkward Postures and Motions	Posture is the position your body is in that affects muscle groups and body parts involved in physical activity. Examples of awkward postures and motions include extended reaching, twisting, bending, kneeling, squatting, or working overhead.
	

b. Forceful Exertions	<p>Force is the amount of physical effort required to perform a task such as heavy lifting, or to maintain control of equipment or tools. The amount of force required to complete the task depends on the type of grip, the size, shape and weight of an object, posture, and the type of activity. Examples include tasks involving gripping, lifting, carrying, lowering, pushing, pulling, holding, assembling, connecting, using a hand tool and maintaining control of a powered tool</p> 
c. Repetition	<p>A motion or activity that is repeated over and over again during a specific time period (e.g. work cycle, shifts).</p> 
d. Sustained Exertions	<p>A body position that is maintained for an extended period of time.</p> 
e. Vibration	<p>The oscillatory motion of an object. Vibration can be described in terms of its frequency, acceleration, and direction of motion. Examples of exposure to vibration include: operating tools such as sanders, grinders, chippers, routers, drills, chain saws and other saws, jackhammers, or sitting/standing on vibrating surfaces such as driving a truck.</p> 
f. Contact Stress	<p>Resting or pressing body parts against a hard surface or sharp edge can result in compression of nerves, muscles, tendons, blood vessels and other tissues. Examples include: pounding with the palm of hand; tools digging into the palm of hand; tools digging into the sides of fingers; resting the knee, elbow, forearm, or wrist on a hard surface or sharp edge.</p> 

g. Cold Temperature	<p>Exposure to low temperatures that impacts the function of specific body parts, primarily hands and fingers. Examples of exposure to cold temperatures include: handling of frozen or refrigerated materials, cold environments, immersion of body parts in cold substances, or cold air exhaust.</p>  <p>Frozen Foods</p>
h. Duration	The amount of time a person is exposed to one or more risk factors.
i. Recovery	Periods of reduced exposure to risk factors. These may be rest breaks, pauses in work activity, or motions and exertions that provide specific body parts the opportunity to recuperate.
j. Magnitude	The amount of each risk factor involved. Examples include: the amount of force applied, the angle/position of the back or the repetition rate. STILL UNDER DISCUSSION

APPENDIX B

Process for Assessing and Responding to Ergonomic Risk Factors

Descriptions and Resources

[Non-Mandatory]

In an effort to assist in the requirements of Section D of the rule which reads as follows:

Section D

Process for Assessing and Responding to Ergonomic Occupational Risk Factors.

- (1) **An employer shall establish and utilize an effective process that includes the following:**

(a) **Employee involvement.**

To assist with this requirement, here are some examples of employee involvement may include:

- i. Suggestion box.
- ii. Employees involved in accident reviews.
- iii. Health and Safety committee.
- iv. Union assistance.
- v. Employee job self-assessment.
- vi. Proactive sign & symptom reporting.
- vii. Routine safety talks.
- viii. Peer observation and intervention program.
- ix. Employee wellness program [Check ANSI 365 form – paragraph]

(b) **Assessment of ergonomic occupational risk factors**

To assist with this requirements, note the following suggestions:

- i. Depending on the nature of your operations and work practices, ergonomic assessments range from simple to complex processes.
- ii. Simple processes may include employee job self-assessment, health & safety committee, contacting your insurance company and/or safety consultants.
- iii. Complex processes may include: using NIOSH lifting equations, or other commercial assessment tools.

(c) **Elimination, reduction, or control of ergonomic hazards where economically and technically feasible.**

To assist with this requirement, note the following suggestion:

- i. If ergonomic risk factors (see Appendix “A”, Table 1) are present in your work place, examine methods and eliminate those risk factors.
- ii. **Administrative controls** such as job rotation, job enlargement, job work-rest cycle, training and focused re-training. Examples could include are not limited to lifting patients using 2 employees, work-rest cycles, stretching
- iii. **Engineering controls** could include but are not limited to examples such as lift assists or redesigning workstation layout or workflow redesign.
Examples: lifting patients using mechanical lifting assists.

(2) Employers with an effective ergonomic program established and documented by the effective date of these rules are exempt from the rules in this section.

To assist in this requirement, note the following suggestions.

- i. If an employer can demonstrate they have established a ergonomic program that at a minimum has essentially accomplished the performance goals as outlined in the rules, then the employer has meet the requirement of these rules.

Assessment Resources

Ergonomic risk factors vary in magnitude, as above, for different jobs and tasks. Exposure to one or many risk factors could be present and should be considered. The assessment process required in Section "D" of the rule could begin by using Table 2 or by other methods of assessment, which may be found various recourses as provided in Table 3 below.

Table 2

Assessment Formula/Process

Awkward Postures & Motions + Forceful Exertions + Repetition + Sustained Exertions + Vibration + Contact Stress + Cold Temperature + Duration - Recovery = Potential Ergonomic Hazard

Not all Ergonomic Risk Factors must be present to have a Potential Ergonomic Hazard

Table 3

For further assistance in assessing risk factors contact MIOSHA, your industry association, or your union contacts, some of which are listed below.

State and Federal Assistance

MIOSHA –Michigan Occupational Safety and Health Administration Consultation Education & Training Division (CET)	www.michigan.gov/cet Phone: 517.322.1856
OSHA Federal Occupational Safety and Health Administration	http://www.osha.gov/SLTC/ergonomics/index.html
NIOSH National Institute of Safety and Health	http://www.cdc.gov/niosh/topics/ergonomics/

Union Assistance

AFL-CIO	– The American Federation of Labor and Congress of Industrial Organizations	www.
General Teamster Union		www.
PACE	– Paper-Allied Industry-Chemical-Energy Workers Union	www.
SEIU	– Service Employees International Union	www.
UAW	– United Auto Workers International	www.
UFCW	– United Food & Commercial Workers	www.

Industry Assistance

Hospitals		
	Michigan Health & Hospital Association (MHA)	www.
Nursing Homes		
	Michigan Association of Homes & Services for the Aging (MAHSA)	www
	Health Care Association of Michigan (HCAM)	www.
General Manufacturing		
	Ford Motor Company	www.
	Dow Chemical Company	www.
	Delphi	www.
	Daimler-Chrysler	www.
	Michigan Manufacturers Association (MMA)	www.
	Society of the Plastics Industry Inc	www.
Office		
	Blue Cross-Blue Shield of Michigan	www.
	Haworth, Inc	www.

General Industry		
	Michigan Chamber of Commerce	www.
	Consumers Energy	www.

University Assistance

	Western Michigan University – Human Performance Institute	www.wmich.edu/ime-hpi/
	University of Michigan – Center for Ergonomics	www.engin.umich.edu/dept/ioe/C4E/
	Michigan State University – Ergonomics Information Center	http://www.lib.msu.edu/ergomsu/index.htm

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